RECOMMENDED PROJECT DELIVERY STRATEGY

DRAFT TECHNICAL MEMORANDUM

BUCKMAN DIRECT DIVERSION PROJECT

Prepared For: **City of Santa Fe and Santa Fe County**

Prepared By: **CDM**

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Summary

The Recommended Project Delivery Strategy addresses key issues requiring early resolution for timely implementation and procurement of the Project, including:

- Operations and Maintenance by the Design/Build Contractor?
- Format for the Design/Build Contract?
- Preliminary Design by the Owners?
- Extent and Responsibilities for Site Investigations?
- Responsibilities for Archaeology Investigations and Cultural Data Recovery?
- Responsibilities for the Acquisition of Permits and Approvals?
- Alternatives for the Design/Build Procurement Technical Proposal Process?
- Alternatives for the Design/Build Procurement Pre-Qualification Process?

The recommended approaches for these issues have been developed to promote the following Owners' Objectives for delivery of the Project:

Quality – *Provide high quality project facilities and equipment that meet performance requirements in order that the Owners can reliably operate the Project to produce high quality drinking water*

Risk – *Minimize the risks of project delivery to all parties, maximize the clarity and acceptance by all parties of the risk allocation, and eliminate the Owners' risks – subsequent to award of the DB Contract – of increased costs and of the completed Project not meeting performance requirements*

Schedule – *Initially establish and maintain the project schedule in order to delivery the completed project in the shortest practicable time and eliminate (to the greatest extent achievable) future occurrences of material project completion delays*

Cost – *Minimize the Owners' life-cycle cost of the project*

Summary of Recommendations

The key issues should be addressed as follows:

- DB Contractor should operate and maintain the BDD facilities for a 1-year period (subject to Owners' extension for a second year) after completion of successful performance testing and should provide certain support services for Owners' subsequent operation and maintenance
- A lump sum compensation form of DB contract should be utilized for obtaining the services of the DB Contractor
- A preliminary design, to various levels of completeness for different project components, should be prepared by the OC
- A relatively extensive program of site investigations should be conducted prior to issuance of the request for proposals (RFP) to the pre-qualified DB firms
- Archaeology investigation and cultural data recovery for known sites should be performed prior to signing of the DB Contract; unknown sites should be addressed by the DB Contractor under a process that will be set forth in the request for proposals
- The acquisition of permits and approvals required for the Project should be shared by the OC and the DB Contractor, as appropriate for each permit
- The DB technical proposal process should include the preliminary design prepared by the Owners as mandatory and allow alternative designs only in limited areas; the DB proposers should be required to accept or enhance the preliminary design when proposals are submitted
- The DB pre-qualification process should specify a short-list of 3 or 4 firms, include some materials that would be included in the subsequent request for proposals (such as risk allocation summary), and set forth minimum criteria for pre-qualification as well as comparative evaluation criteria

These recommendations have been developed through the participation of representatives of the Owners and the Owners' Consultant at two workshops on project delivery alternatives (held on July 27 and August 12, 2005) and based on the analysis of alternatives by the Owners' Consultant as documented in two Draft Technical Memoranda (dated July 11 and August 9, 2005).

Recommended Project Delivery Strategy

DB Contractor O&M Term and Scope

It is recommended that the DB Contractor should be required to operate and maintain the completed project for a period of one-year after successful completion of performance testing, subject to the Owners' right to extend DB operation and maintenance for an additional year. It is also recommended that upon transfer of the

responsibility for operations and maintenance to the Owners, the DB Contractor should be required to provide a package of operations and maintenance support services for a period of one to two additional years when the Owner is responsible for operations and maintenance of the facilities. The exact scope of such support services would be defined in the request for proposals and the Owners would obtain competitive pricing through the proposal process at which time it would decide which services should be obtained. Such support services might include ongoing training of Owners' operations and maintenance personnel, technical trouble-shooting, operating cost optimization assistance, organizational and management consulting, specialized maintenance services, and the like.

These recommendations promote and trade-off the Owners' Objectives as follows:

Quality: A full year of DB contractor operations will enable the reliability of the completed facilities to be tested over a relatively wide range of variation in raw water quality conditions (both quantity and quality) and ongoing support services for operation and maintenance by the Owners will enhance reliability during the initial period of Owners' operation. A full year of operation and maintenance by the DB Contractor will also provided added incentive for high quality design and construction.

Risk: Direct assumption of cost and performance risks of operation and maintenance for a one-year period helps to reduce the Owners' subsequent risks of operation and maintenance costs and reliable performance.

Schedule: Potential for one to two months delay in procurement, if a mid-course correction is required due to a negative DB marketplace response to the one-year operations and maintenance requirement.

Cost: The added costs for DB contractor support services can be evaluated against anticipated benefits to the Owners during the proposal process before the DB Contract is signed. A potential reduction in competition may occur (and thus increase in project costs to the Owners) if potential DB contractors are reluctant to add responsibility for operations and maintenance and do not participate in the procurement process. Some additional costs will be incurred by the Owners due to DB operations and maintenance risk premium and mobilization cost amortization.

Design Build Contract Format

It is recommended that a lump sum compensation format be utilized for the permitting, design, construction, and performance testing services under the DB Contract. The alternative of a guaranteed maximum price under a negotiated construction management at-risk contract format, while providing some benefit to the Owners due to greater control over the DB design, is not recommended due primarily to Owners' disadvantages in the areas of cost, administrative complexity, and schedule risk.

This recommendation promotes and trades-off the Owners' Objectives as follows:

Quality: Inclusion of a preliminary design as the basis for the DB Contract lump sum price will add to the Owners' ability to operate the completed project reliably, although the guaranteed maximum price format provides greater participation of the Owners in the DB's detailed design.

Risk: Acceptance or enhancement of the preliminary design by the DB proposers will further reduce risks to Owners of nonperformance of completed project of increased project costs after DB Contract is signed.

Schedule: Avoids potential for major delay if Owners and DB Contractor negotiations are unsuccessful due to inability to reach agreement as to the amount of the guaranteed maximum price after the DB Contract is signed.

Cost: Competitive pricing by pre-qualified DB proposers using mandatory preliminary design will tend to reduce the life-cycle cost for the Owners' desired project design.

Preliminary Design by the Owners

It is recommended that the following levels of preliminary design of the BDD facilities be prepared by the Owners and included as a mandatory requirement in the request for proposals issued to the pre-qualified DB proposers (30% is considered full preliminary design):

- Diversion structure and low lift pumping station – moderately high level (20%)
- Sedimentation facilities – low level (10%)
- Raw water pipeline and booster stations – low level (10%)
- City/County Water Treatment Plant (WTP) – high level (30%)
- Finished water transmission pipelines – moderately high level (20%)

These levels of preliminary design are intended to express the Owners' preferences, define Owners' specific quality and reliability requirements, support Owners' early acquisition of permits, and promote Owners' Objectives for the Project as described below.

Quality: Inclusion of a preliminary design provides for substantial participation by Owners in important design decisions and allows for the expression of Owners preferences (such as design features to improve the Owners' reliability of operation). Lack of preliminary design would expose the Owners to design approaches and features that may be problematic when it is time for Owners to assume long-term responsibility for operation and maintenance.

Risk: The greater definition of project scope provided by a preliminary design reduces the risk of cost increase after the DB contract is signed and DB proposer acceptance or enhancement of the preliminary design reduces the risk that the completed project will not meet performance requirements. However, there is a potential for a dispute between Owner and the DB Contractor regarding liability for performance of the preliminary design.

Schedule: The preparation of preliminary design by the Owners supports delivery of the project in the shortest practicable time by allowing for early submission of permit applications and compressing the time required for design work by the DB Contractor and review by the Owners' Consultant. It also reduces the risk of delay after the DB Contract is signed due to disputes or extensive Owners' comments on preliminary design prepared by the DB Contractor.

Cost: The potential for DB proposer design innovation to reduce the project's life-cycle cost is reduced where full preliminary design is prepared by the Owners, but greater control over the Owners' long-term annual costs of staffing is achieved. Project elements with minimum to moderate preliminary design by the Owners will provide greater potential for life-cycle cost savings due to DB proposer design innovation.

Extent and Responsibility for Site Investigations

It is recommended that a complete site investigation program be undertaken prior to issuance of the request for proposals to the pre-qualified DB proposers to provide a relatively extensive base of information on existing site conditions to the DB proposers and ultimately to the DB Contractor. The recommended site investigation program, if accepted by the Owners, can be incorporated in more detail as part of the OC scope of services for Phases B, C and D, and as an additional service under Phase A. Early site investigation work on federal property is subject to the approval of the USFS and BLM since the NEPA process has not been completed.

The program would include geotechnical investigations at the water treatment plant site, the near river facilities, as wells as along the many miles of raw water and finished water pipelines. Basalt formations are known to be located in the area around the City/County landfill. It is important that it be determined before DB proposals are submitted if this material is present at the water treatment plant location. This material requires additional excavation efforts including blasting, which would increase construction costs at the water treatment plant. A grid of geotechnical borings at the plant site is recommended to provide an adequate level of information. Borings and trenching investigations are also recommended at the near river facilities and along the pipeline routes.

In addition to geotechnical investigations, pipe material corrosion analysis is recommended. This study would provide an evaluation of soils removed under the geotechnical work to determine potential corrosion effects on various pipeline

materials. A stray current study would be included in this material to evaluate the effects of electrical utilities and cathodically protected utilities along the route on the BDD pipelines.

It is also recommended that a Phase 1 Site Assessment be conducted in the project areas. Much of the area is in open undisturbed land where the risk of waste disposal or other materials is low. However, there are areas where previous activities could have left materials that would delay construction. These areas mostly include sections of land south of the City/County WTP.

This recommendation promotes and trades-off the Owners' Objectives as follows:

Quality: The availability of comprehensive information on existing site conditions will help ensure that the BDD facilities are designed to accommodate actual or know conditions.

Risk: The reduction of uncertainty concerning existing site conditions will reduce the risks of project delivery to all parties, including the Owners, and will promote acceptance of the Owners' intended risk allocation.

Schedule: Performance of site investigations prior to issuance of the request for proposals removes this important activity from the project schedule's critical path and therefore promotes delivery in the shortest practicable time, as well as reducing the risk of project delay caused by the discovery of unknown conditions.

Cost: Lower life-cycle project cost is promoted by reducing the need for DB proposers to add cost contingencies (and thus higher prices to the Owners).

Archaeology Investigations and Data Recovery

It is recommended that investigation and cultural resource data recovery at the known archaeology sites should be conducted by a single party hired by the Owners prior to issuance of the request for proposals to the pre-qualified DB proposers. (The State Historical Preservation Office [SHPO] has expressed preferences for investigation and data recovery being performed by one party in lieu of splitting this responsibility between two parties, though both methods have been accepted.) Investigation and data recovery at unknown sites that would be disturbed by the DB Contractor's construction work should be performed pursuant to a process approved by SHPO and included as in the request for proposals a requirement that must be followed by the DB Contractor.

This recommendation promotes and trades-off the Owners' Objectives as follows:

Quality: By direct hiring of the firm that performs investigation and cultural resource data recovery for known sites, the Owners can obtain the quality of such services that would be acceptable to regulatory agencies.

Risk: Elimination of this uncertainty for DB proposers will reduce the risk of additional costs to the Owners after the DB Contract is signed.

Schedule: Performance of investigation and data recovery before issuance of request for proposals will reduce the potential of pipe laying activities from becoming critical path work, thus promoting delivery within the shortest practicable time, and will further reduce the risk of project delay once the DB Contact is signed.

Cost: While the cost of the investigation and data recovery services ultimately incurred by the Owners should not be significantly different, the elimination of uncertainty for the DB proposers will reduce the need for price contingency and lower the DB cost to the Owners.

Cultural resources clearance work should be able to take place prior to the signed Record of Decision (ROD) for the Project, as has been done on other projects. However, this would require approval of the USDA Forest Service and Bureau of Land Management.

Acquisition of Permits and Approvals

It is recommended that the responsibility of acquiring the permits and approvals required for the project should be divided between the OC and the DB Contractor. The assignment of specific responsibilities is set forth in the *Permit Plan* prepared by the OC (August 22, 2005) and is based in large part upon the level of design required for regulatory review and issuance of the desire to reduce permitting uncertainty as much as practicable for the DB proposers and ultimately the DB Contractor.

It is envisioned that some permits will be pursued by both the OC and DB at different stages or in different roles. As an example, completion of the BLM Plan of Development and USFS Operations and Maintenance Plan is currently assigned to the DB. Recognizing key relationships between the OC and the BLM for instance may require the OC to be the main agency contact and thus be the party to compile the information into a submittal package. The actual division could change based upon selection of other alternative under consideration. For instance, the extent of preliminary design selected directly impacts the permitting strategy for some of the project facilities. Completion of a preliminary design for the treated water pipeline along NM 599 may allow the OC to complete and acquire the ROW for this pipeline prior to procuring the DB.

This recommendation promotes and trades-off the Owners' Objectives as follows:

Quality: Allocation of responsibility for acquisition of permits and approvals does not affect quality of the completed project.

Risk: To the extent that permits and approvals are obtained prior to initiation of the DB Contract, the time and cost uncertainties for the Owners and the DB Contractor are

reduced. The potential for cost increase after the DB Contract is signed is therefore reduced.

Schedule: Overall project schedule is reduced by approximately two months when permit and approval responsibilities are allocated in optimal manner between the OC and the DB Contractor. Also, the risk of schedule delay is reduced once the DB Contract is signed.

Cost: Allocation of permit and approval responsibilities between the OC and the DB Contractor is not expected to have significant cost implications. However, with the OC obtaining many permits prior to the completion of the RFP process, and with a well defined permit plan, the bidders' cost contingency should be reduced.

Design Build Procurement Technical Proposal Process

It is recommended that the DB procurement process be designed to require a single proposal, consisting of technical proposal and business proposal components, and that alternative design approaches be limited to areas specifically identified in the mandatory preliminary design. Any such design alternatives would be considered by the DB proposer and its best approach for each would be reflected in a single technical proposal (not in several alternative technical proposals).

The use of a stipend may be affected by applicable procurement law and rules (which is in the process of being examined by the Owners), but as a policy matter, it is not recommended at this time that a stipend be paid to DB proposers. The use of a stipend can be beneficial where there is a need to overcome concerns about project viability or likelihood of contract award or where there may be value in proposals with wide-ranging alternative designs or technologies. None of these circumstances exist for the Project. However, if circumstances change or if this issue is raised by potential DB proposers, it should be re-evaluated at that time.

Design Build Procurement Pre-Qualification Process

It is recommended that the following alternatives for the DB pre-qualification process should be considered further during the preparation of the draft request for qualifications (RFQ) and the draft request for proposals (RFP):

> **PQ-1. Size of the pre-qualified short list:** It can range from a minimum of 3 under the City's Purchasing Procedures for Design/Build Projects to a maximum of 5 under the State Procurement Code. The Owners' final determination of applicable procurement law for the Project must be followed in developing a recommendation for the size of the short list to be included in the RFQ, but it appears that a recommended short list of 3 or 4 firms may be consistent with applicable procurement rules.

PQ-2. Requirement for interviews: Interviews of DB firms seeking inclusion on the pre-qualified short list may not be required during the pre-qualification process, but may be required during the proposal evaluation process.

PQ-3. Extent of RFP-related materials: The RFQ should incorporate, as a minimum, a general risk allocation matrix and overall procurement schedule.

PQ-4. Minimum criteria and/or comparative rankings for pre-qualification short list: The process for selection of the pre-qualified short list will be developed once the Owners' outside legal counsel makes a final determination as to the applicable procurement law, but should include both minimum criteria for pre-qualification and comparative evaluation criteria to rank the most qualified firms for the short list.

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